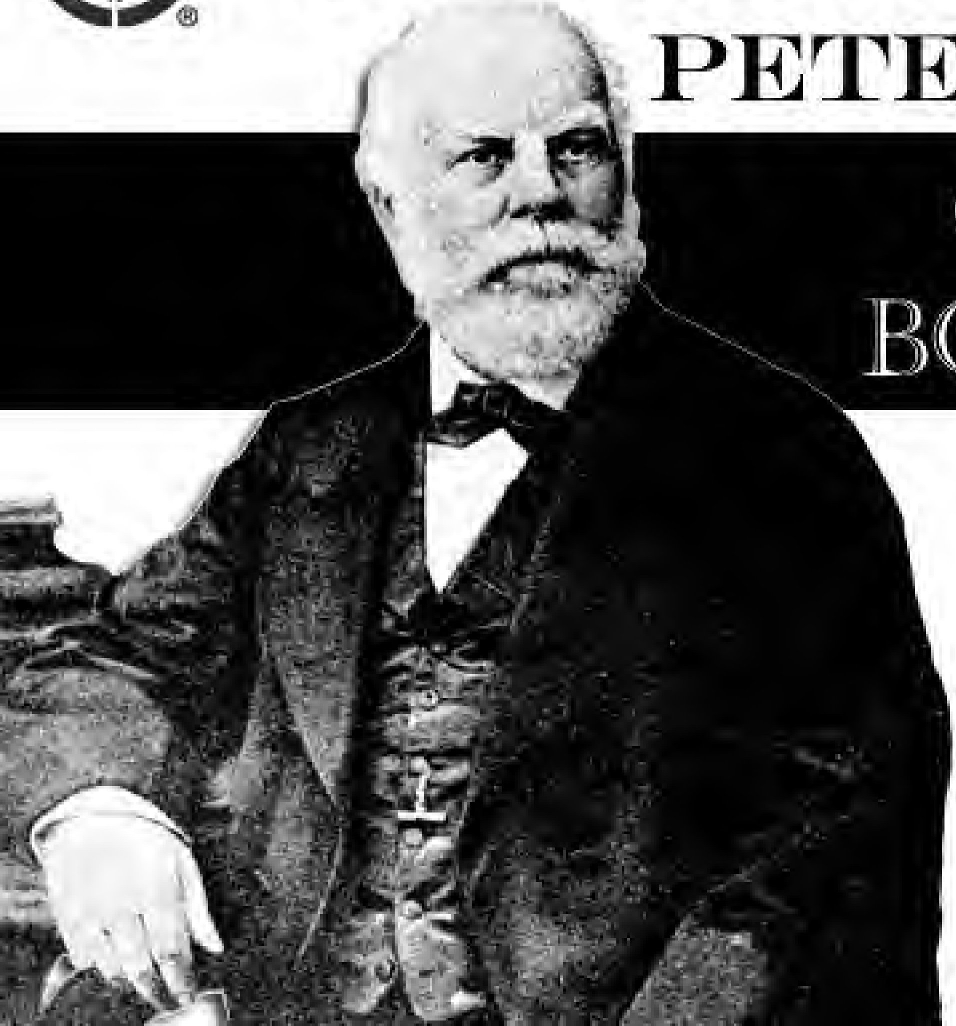
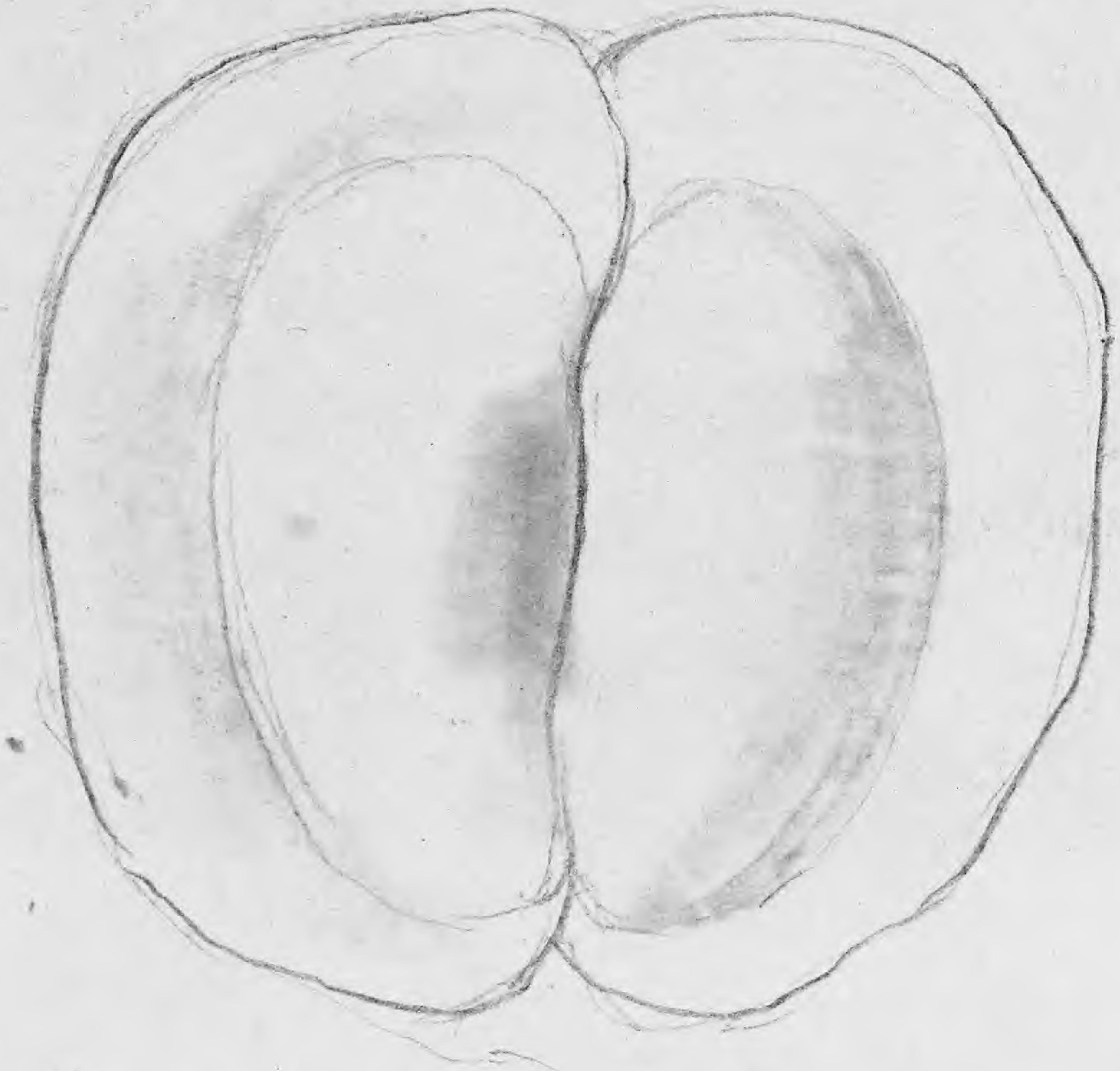


Callitriche autumnalis! Sept 20 1864

Franklin! Expedition c Hb Short

$\frac{65}{30} = 2,2$ mm



983

ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

983A

VI. The appearance of negative electricity was connected in

1861. No. times.	1862. No. times.	
30	32	with thunderstorms.
23	28	with rains without thunder and lightning.
20	4	with dry storms (without rain and without thunder and lightning).
4	3	with snow.
1	0	with fog.
78	67	

VII. *Relation of Rain and Snow to Electricity.*

Rain without thunderstorm was accompanied

	By Positive Electricity.		By Negative Electricity.		By no Electricity.	
	In 1861.	In 1862.	In 1861.	In 1862.	In 1861.	In 1862.
January	7	5	3	2	......	2 ......
February	2	1	4	1	......	......
March	......	5	6	4	......	......
April	8	6	7	11	......	1 ......
May	10	7	1	1	3	1 ......
June	7	1	......	......	......	3 ......
July	2	4	......	......	......	3 ......
August	3	......	1	......	1	2 ......
September	4	......	......	1	4	8 ......
October	3	1	1	1	7	1 ......
November	2	3	......	7	......	7 ......
December	2	3	......	......	......	6 ......
	50 + el.	36 + el.	23 — el.	28 — el.	15 no el.	34 no el.

Snowing was accompanied

	By Positive Electricity.		By Negative Electricity.		By no Electricity.	
	In 1861.	In 1862	In 1861.	In 1862.	In 1861.	In 1862.
January	3	9	......	2	......	......
February	12	8	......	1	......	......
March	3	12	......	......	......	......
October	......	1	......	......	......	......
November	......	4	......	......	......	......
December	5	2	2	......	......	1 ......
	23 + el.	36 + el.	2 — el.	3 — el.	......	1 no el.

REMARKS.

The monthly mean of atmospheric electricity in 1862 was not quite so regular as that in 1861. While in 1861 an un-

Cautumalidin!
Hegelm. mon. 1869 p. 61
Corisius Bot. Mem. Mog. V. 1817
Kew. Trans. VII. 1832 p. 136

interrupted descent and ascent took place from January to December, we find in 1862 some interruptions in the steps of that ladder. The electricity in February, 1862, is about four degrees higher than that of January, April somewhat higher than March, and July is the lowest instead of September in 1861. These trifling irregularities may be accounted for by differences in temperature and relative humidity, and by a greater number of thunderstorms in 1862. January of 1862, for instance, was so unusually rainy, that its relative humidity too was unusually high, diminishing thus electricity. But the general features of distribution of electricity throughout the year are apparent in both years, and we may in that respect divide the twelve months of each year into two or three groups. Computing the months which give the highest electricity and those which give the lowest in each year, we find that in both years the months of January, February, March, April, November and December exhibit the highest, and the months of May, June, July, August, September and October the lowest electricity. The first group gives

The aggregate monthly mean of	71.5	degrees of	electricity	in 1861
and	74.6	"	"	" 1862
While the second group gives	29.0	"	"	" 1861
and	25.7	"	"	" 1862

The second group prevailed therefore in 1861, and the 1st in 1862.

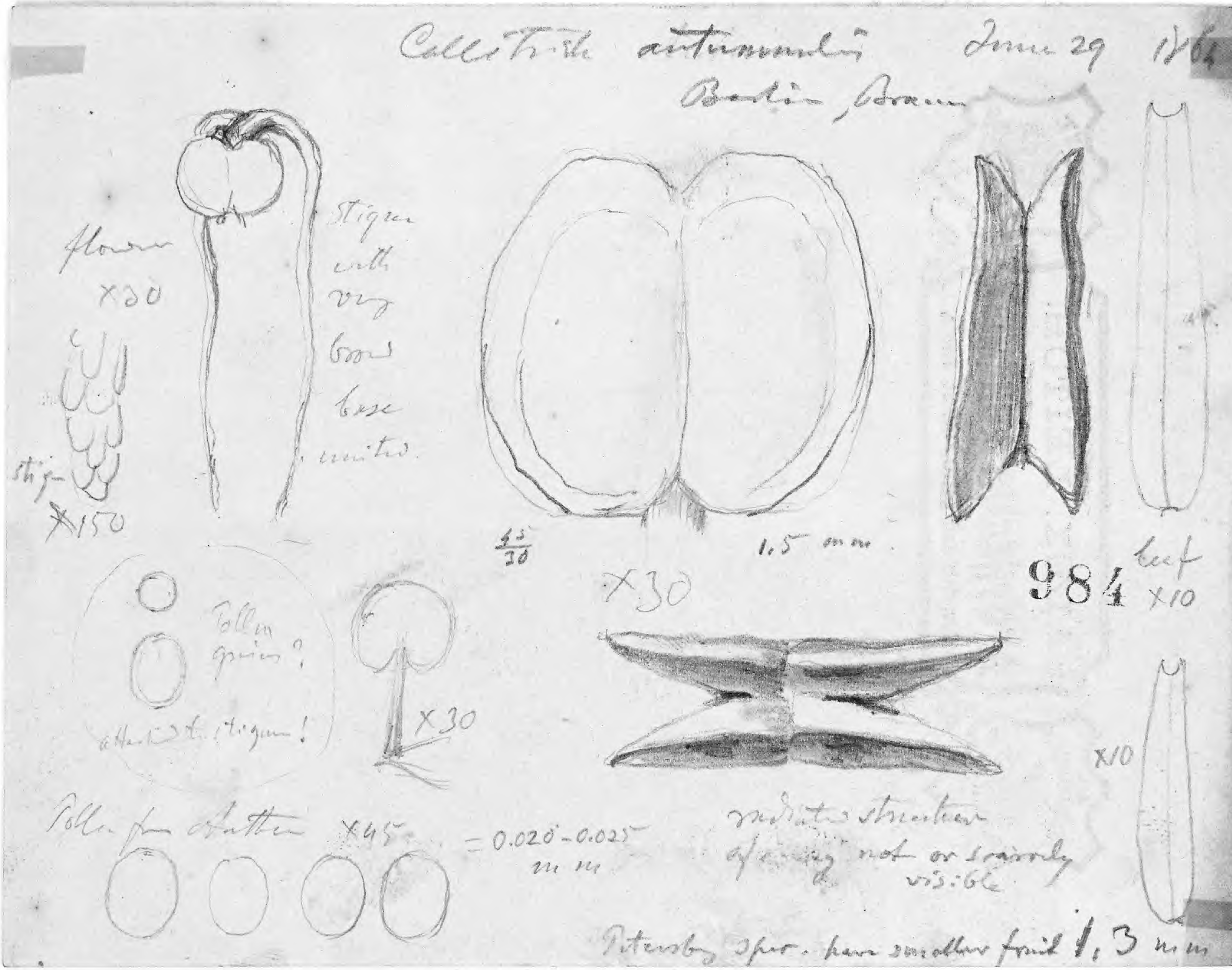
Or we may divide the twelve months of each year into three groups. The first group with the highest electricity is formed by the months of January, February, November and December; the second with a mean electricity by the months of March, April, May and October; and the third with the lowest electricity by the months of June, July, August and September.

The aggregate monthly mean of

The first group	in 1861 is	52.9—	in 1862,	54.6
The second	" "	33.5	"	35.2
The third	" "	14.1	"	10.5

Thus in 1861 the third group prevailed, and in 1862 the first and second. But these differences are so well balanced throughout the year, that the mean of the whole year in 1861 and in 1862 is exactly the same, namely, 8.4. Such an identity in the yearly result, even to decimals, is of course not to be expected every year; but it seems to prove, at least, that the yearly mean of electricity is as constant as that of temperature, of relative humidity, and of atmospheric pressure.

The third table, showing the daily periodicity of atmospheric electricity, confirms the daily two maxima and two minima of electricity as an undeniable fact.



0 1 2 3 4 5 6 7 8 9 10
cm

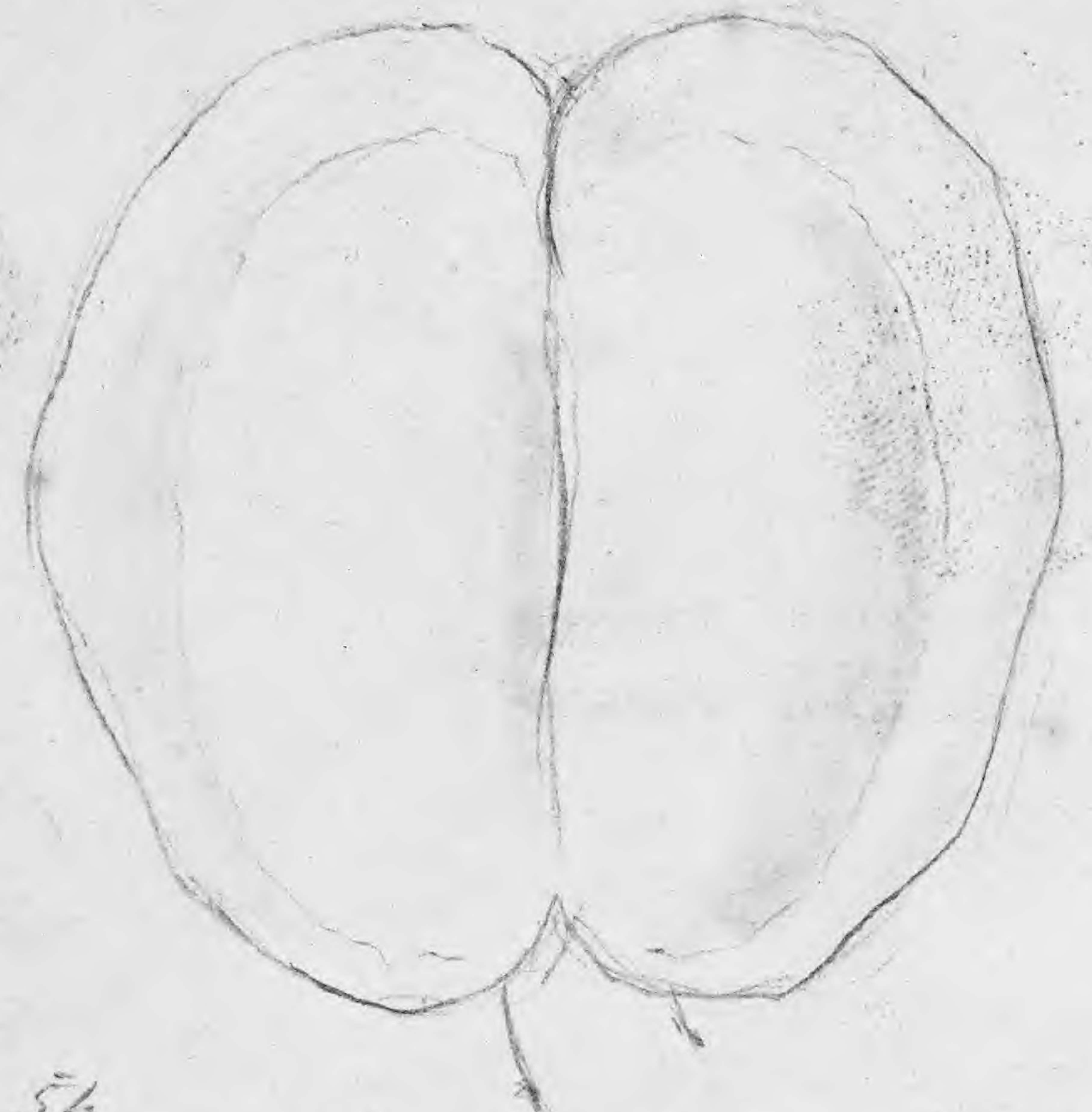
CHEMIST

ALEX. LEITCH,
APOTHECARY & CHEMIST,
Cor. 4th and Olive Sts., St Louis.

ALL THE NEW REMEDIES CONSTANTLY ON HAND

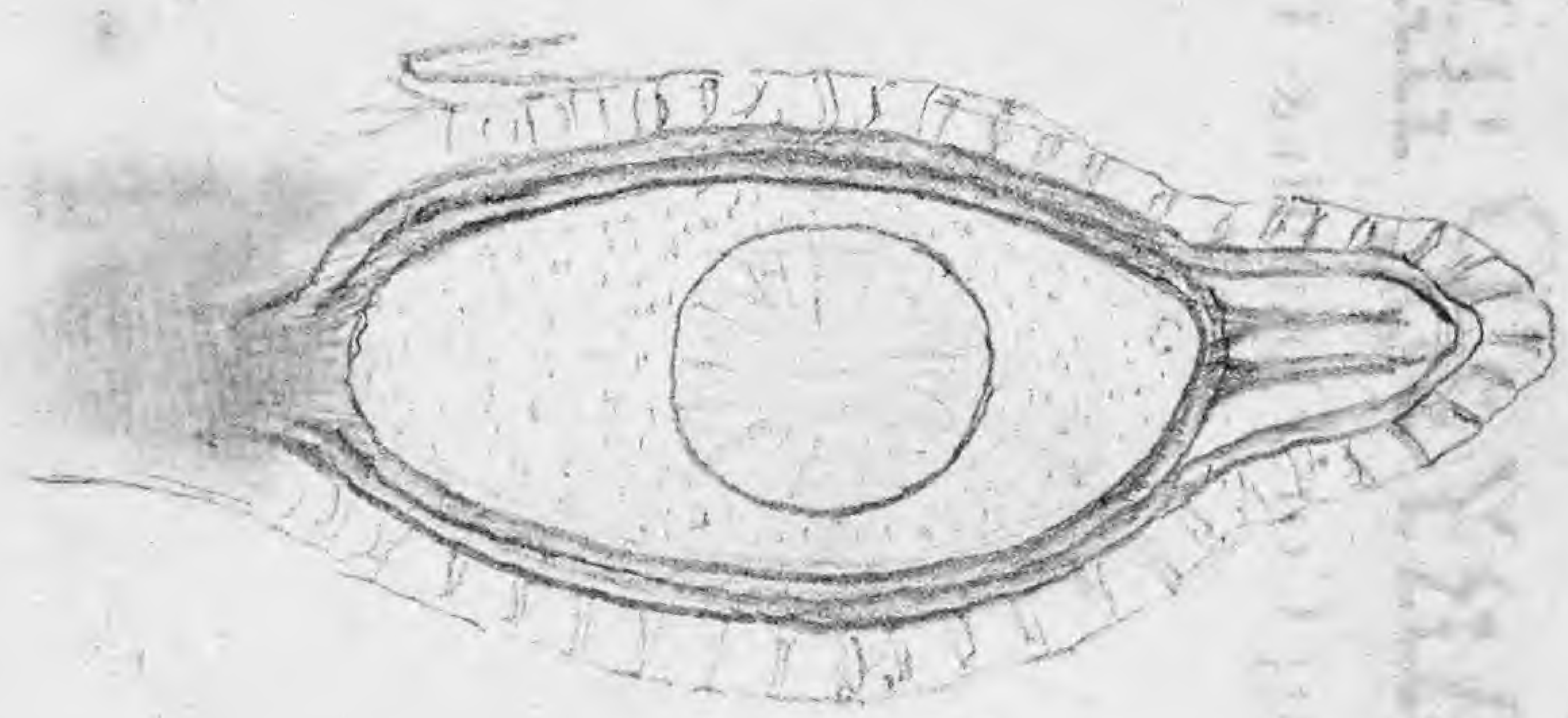
Callitriche autumnalis Sept 19 1864

Alexandria bay



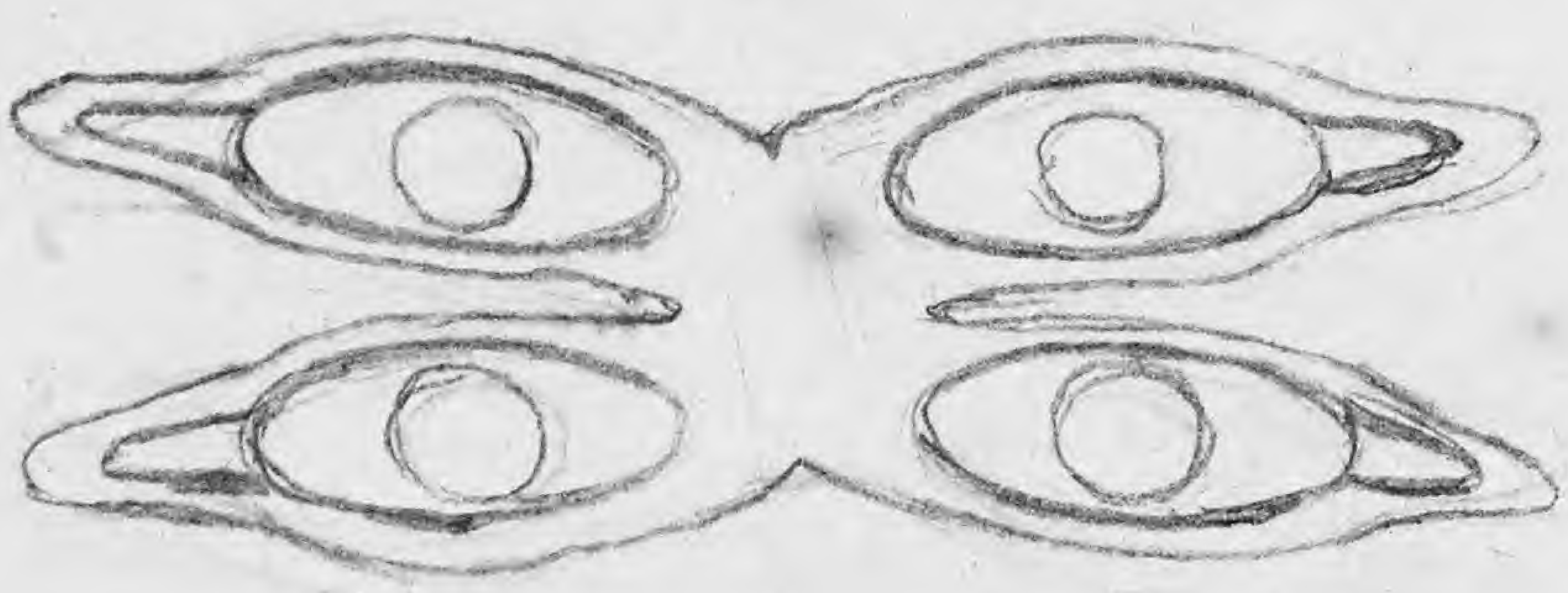
x 150

reticulation indistinct, better seen after immersion and soaking in water in seed not quite ripe and very distinct in transmitted light



seed x 60
showing attachment
of seed

$\frac{54}{30}$ = 1,8 mm (many only 1.5 diam



x 30

985

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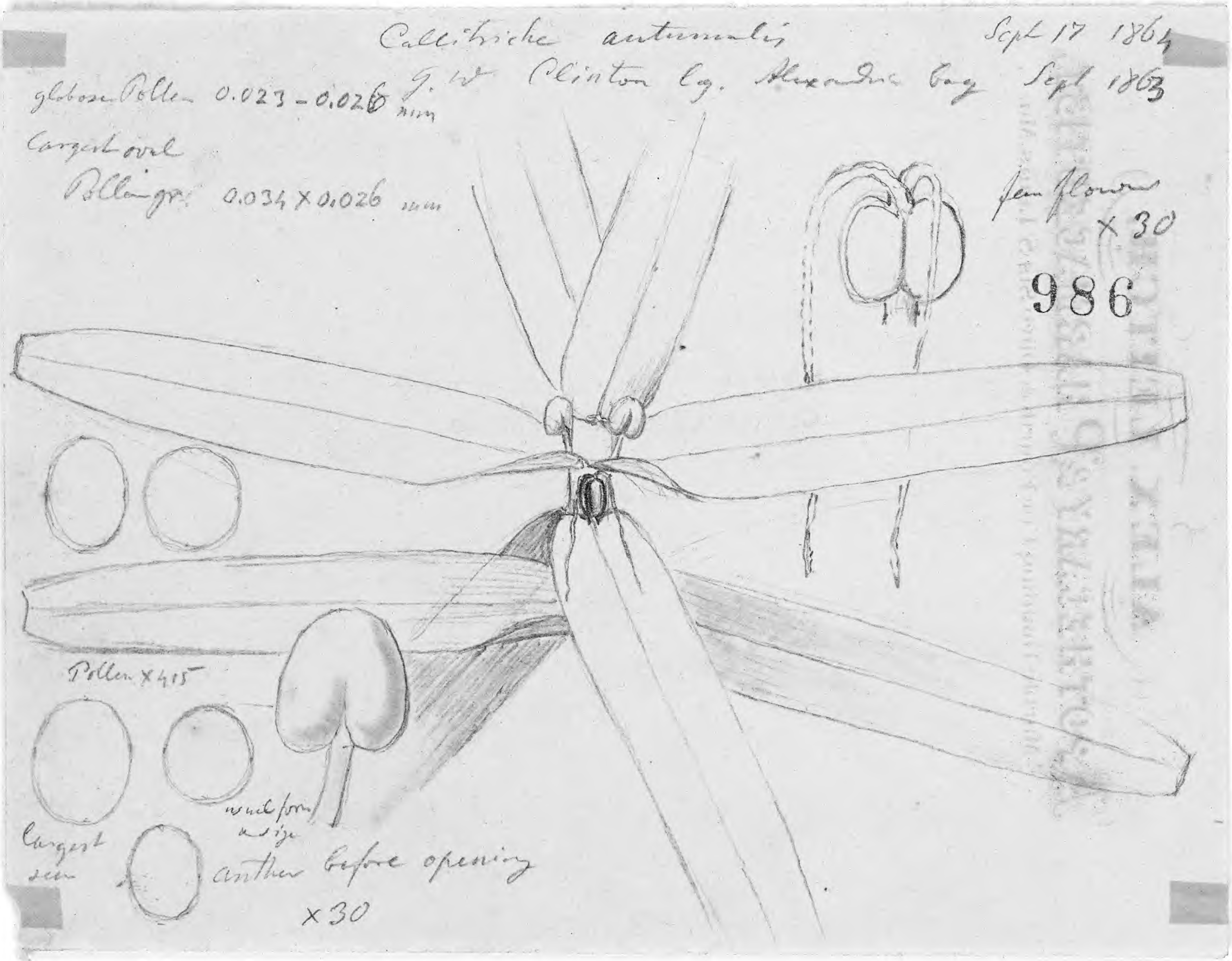
Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.


Callitriche autumnalis
Sept 17 1864
G. W. Clinton leg. Alexandria bay Sept 1863
globose Pollen 0.023 - 0.026 mm
Largest oval
Pollengr: 0.034 X 0.026 mm
fem flowers
X 30
986
Pollen X 415
Largest seen
usual form and size
anther before opening
X 30

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Marble Building Cor. Fourth & Olive Sts. S^t Louis, Mo.

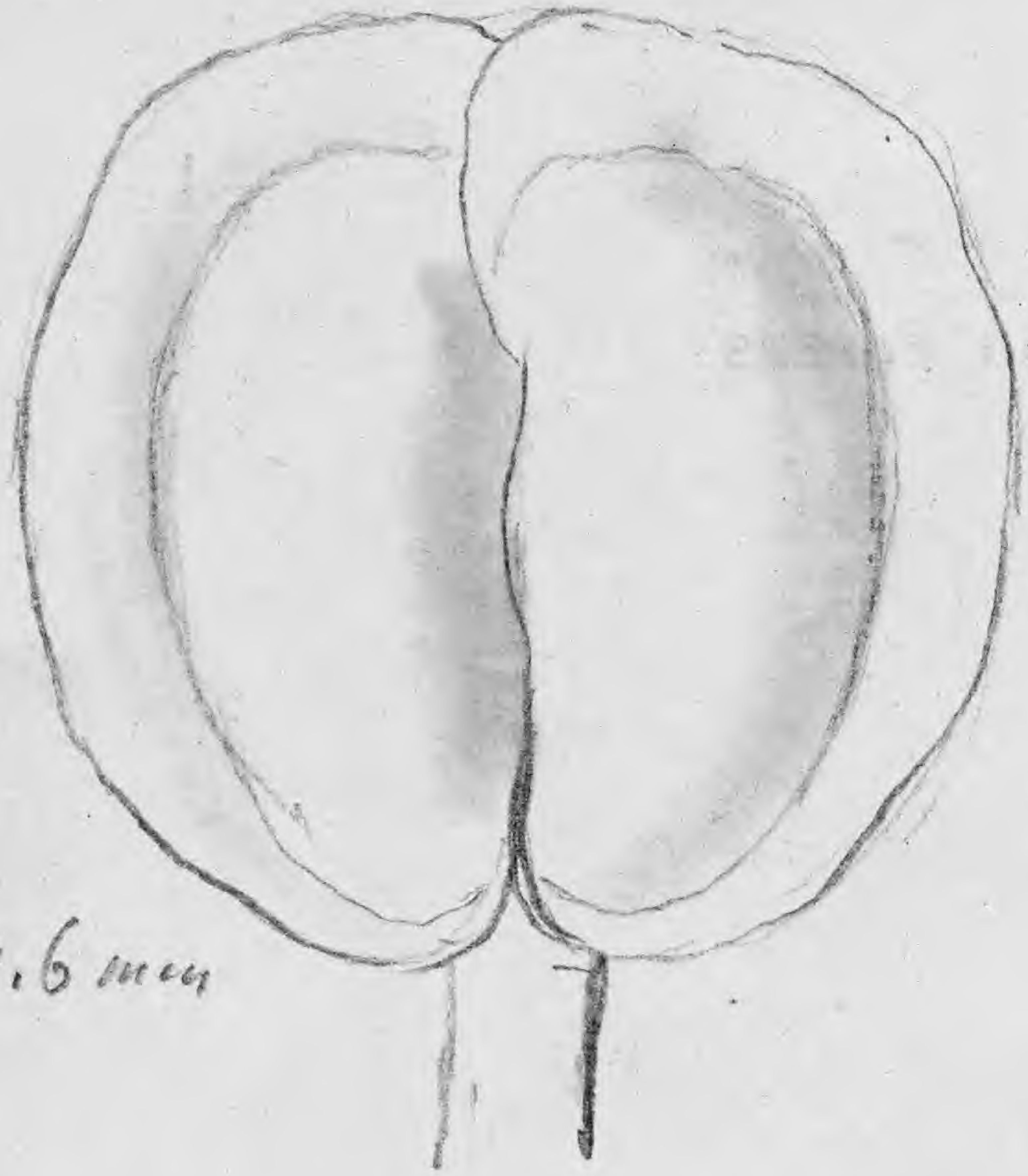
C. autumnalis Sept 20 1864

Fresh water lake Sumass

British Columbia

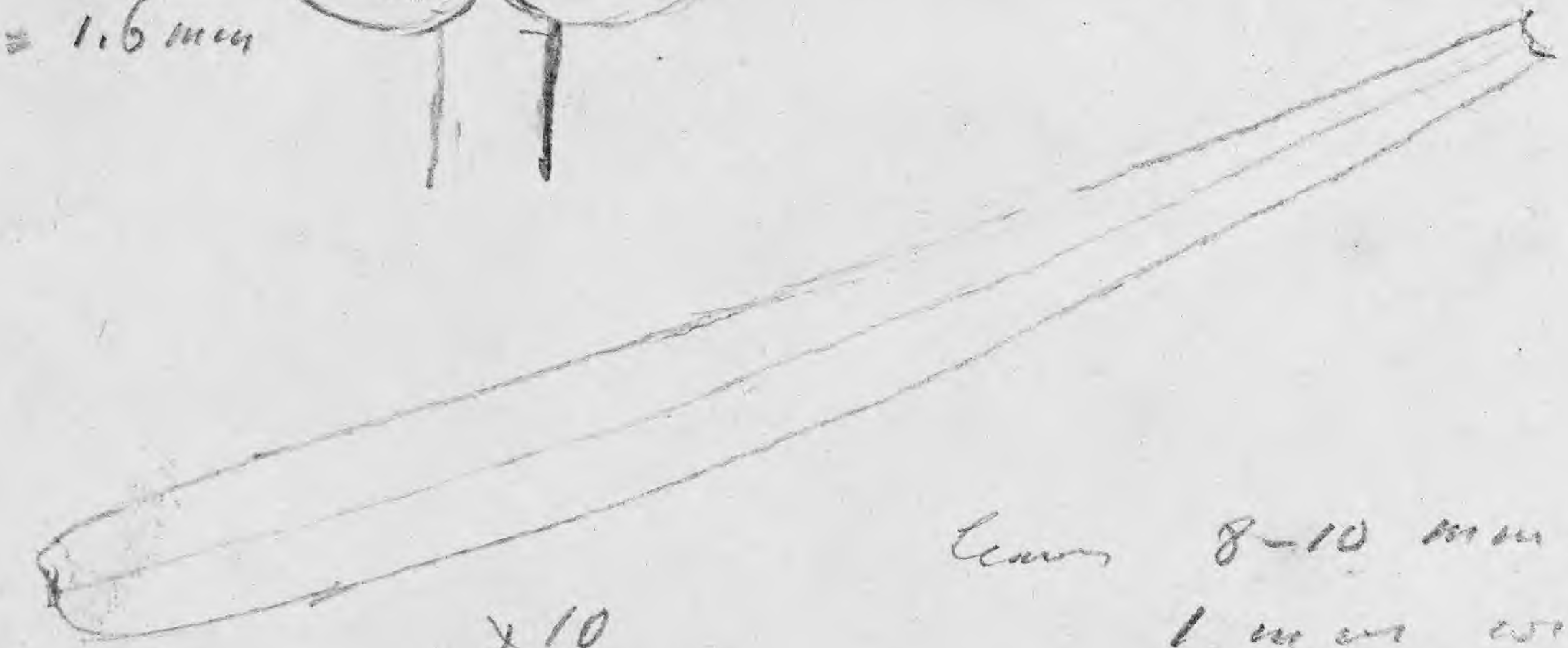
Hb A Gray Nov 1858

x30



$\frac{47}{30} = 1.6$ mm

987



leaves 8–10 mm long
1 mm wide

x10

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C. autumnalis Sept 20 1864

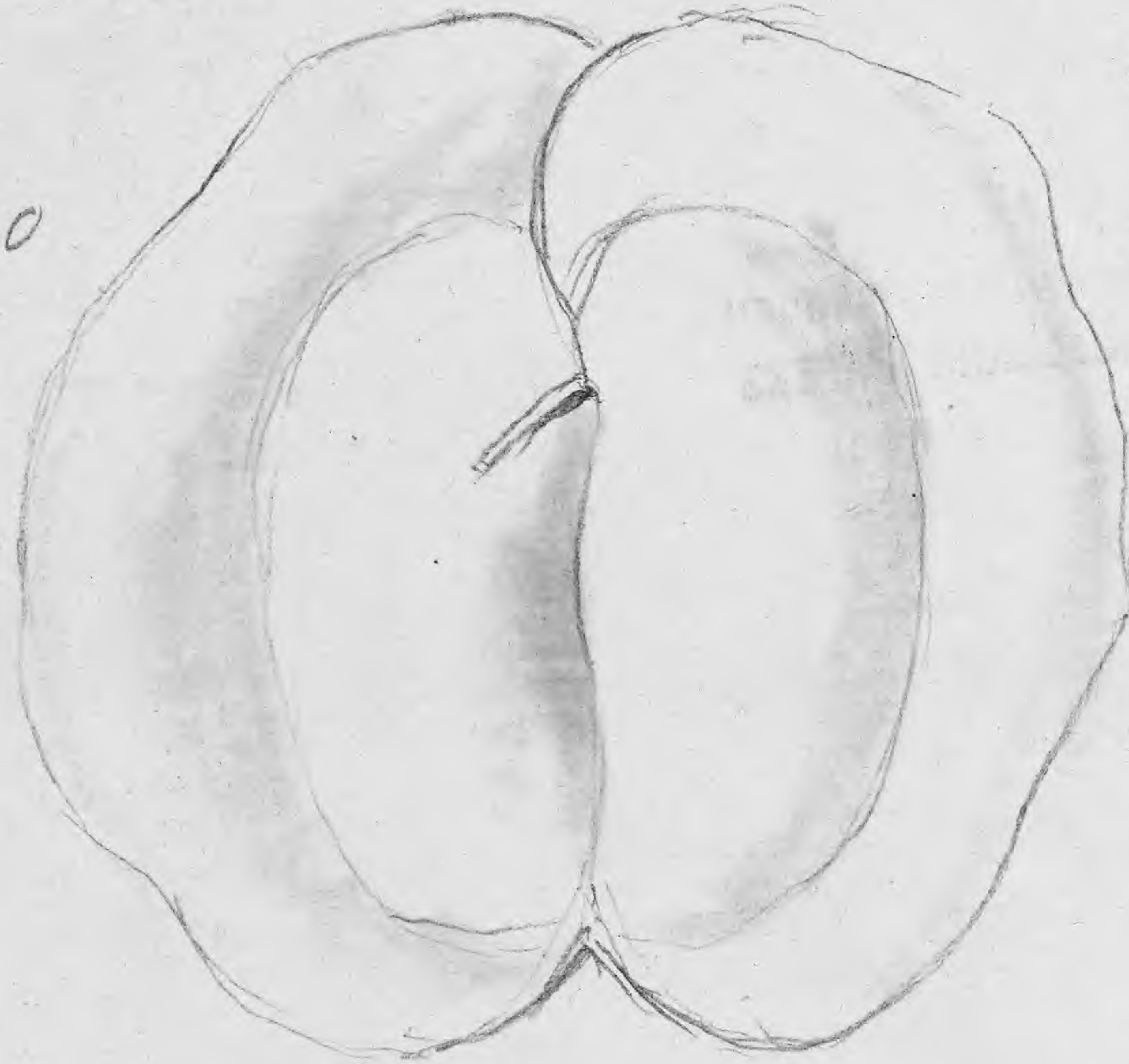
$\frac{73}{30} = 2,4$ mm

Seeds of Clommenea

Arnott

= HB Gray

x 30



988

x 10.

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Marble Building Cor. Fourth & Olive Sts. St Louis, Mo.

Call autumnalis

March 14 1865

Loch Clunie

Scotland

in Hb Torrey

×30

989

$\frac{79 \times 72}{30} = 2.6 \times 2.4$ mm — a little wider than high

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Call. autumnalis March 14 1865

St Petersburg

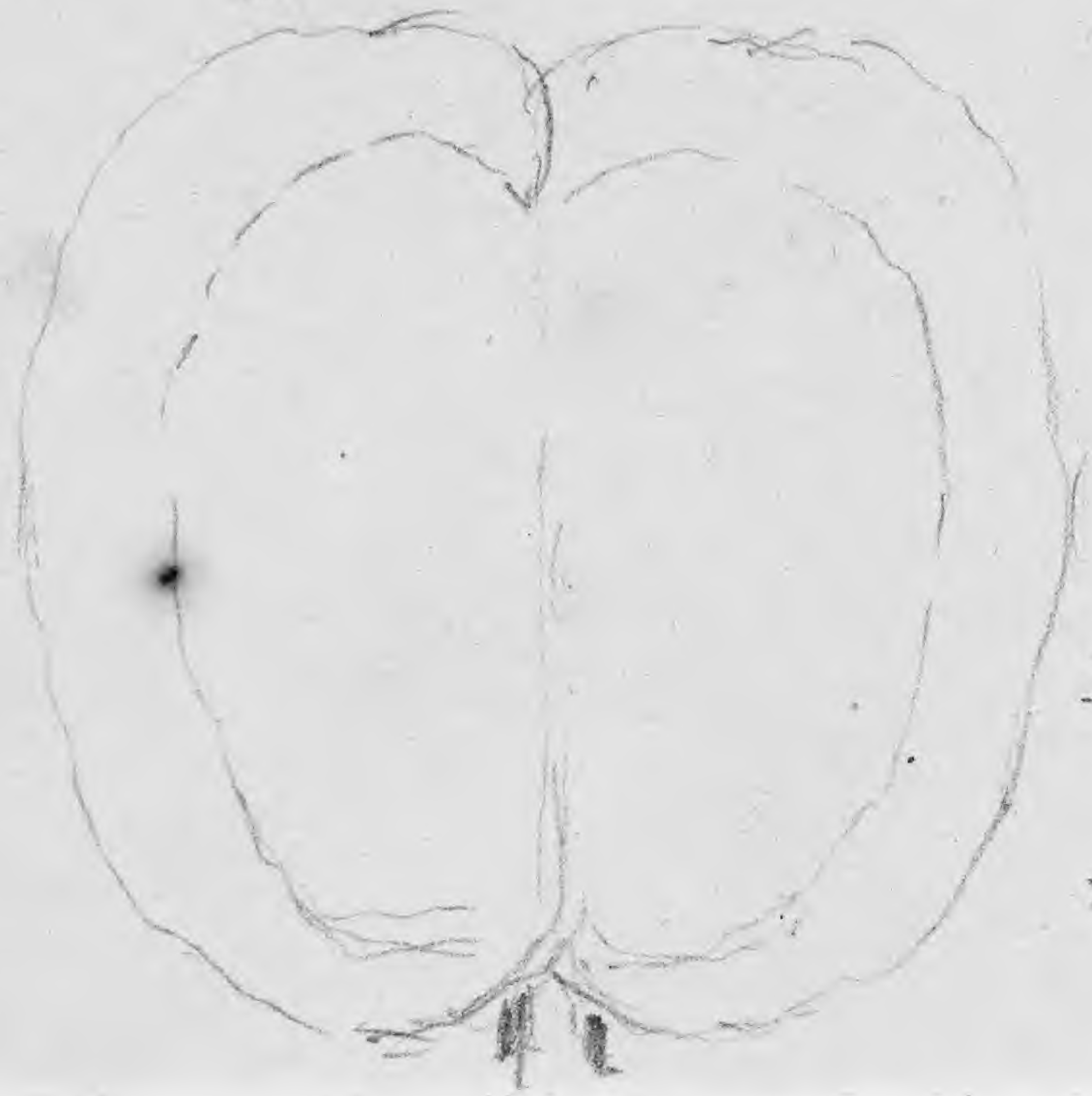
Turczaninow

in Herb Torrey

×30

$\frac{28 \times 28}{30}$ 0.9 × 0.9 mm

990



(?.)

Lake Sumas

north western Boundary, British Columbia

Dr Lyall

in Herb Torrey

$\frac{48 \times 46}{30}$

= 1.6 mm wide

1.5 mm high

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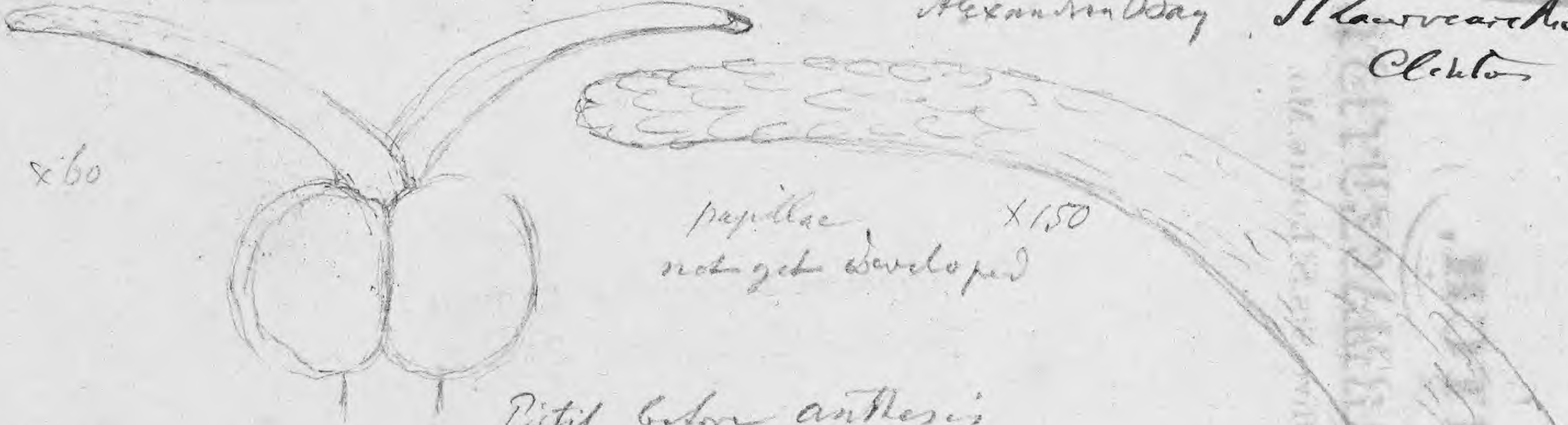
Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

Callitriche autumnalis

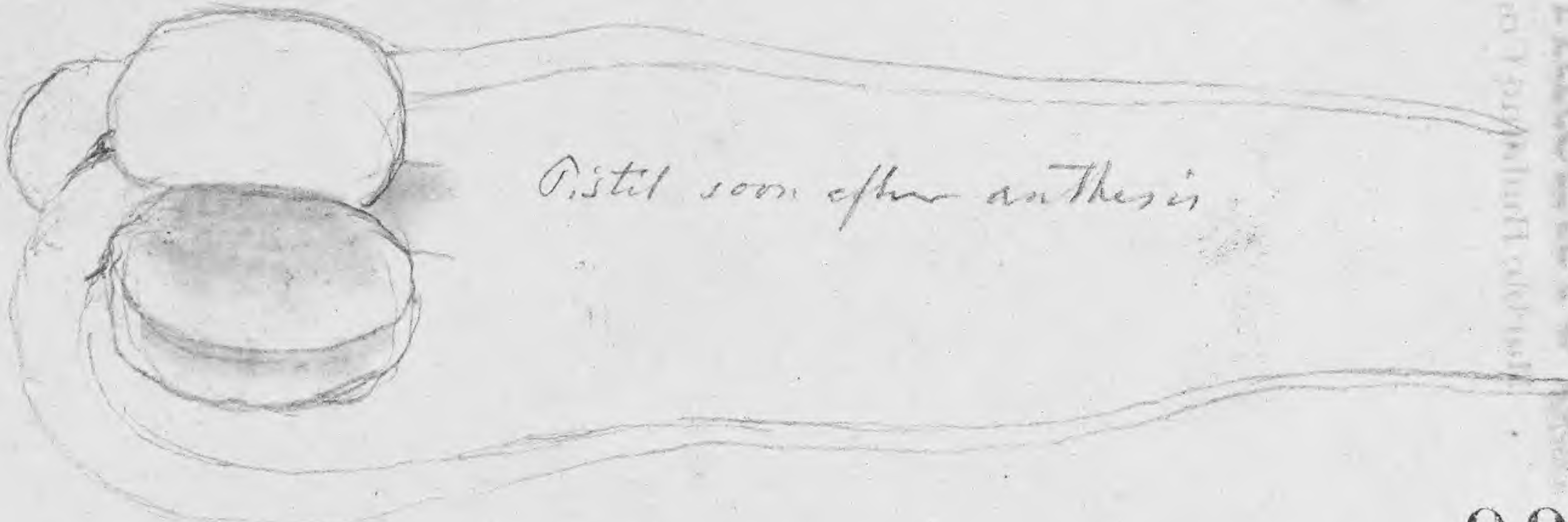
Sept 18 1864

Alexandria Bay St Lawrence River

Clinton



Pistil before anthesis



Pistil soon after anthesis

991

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Callitriche autumnalis
Holsatia

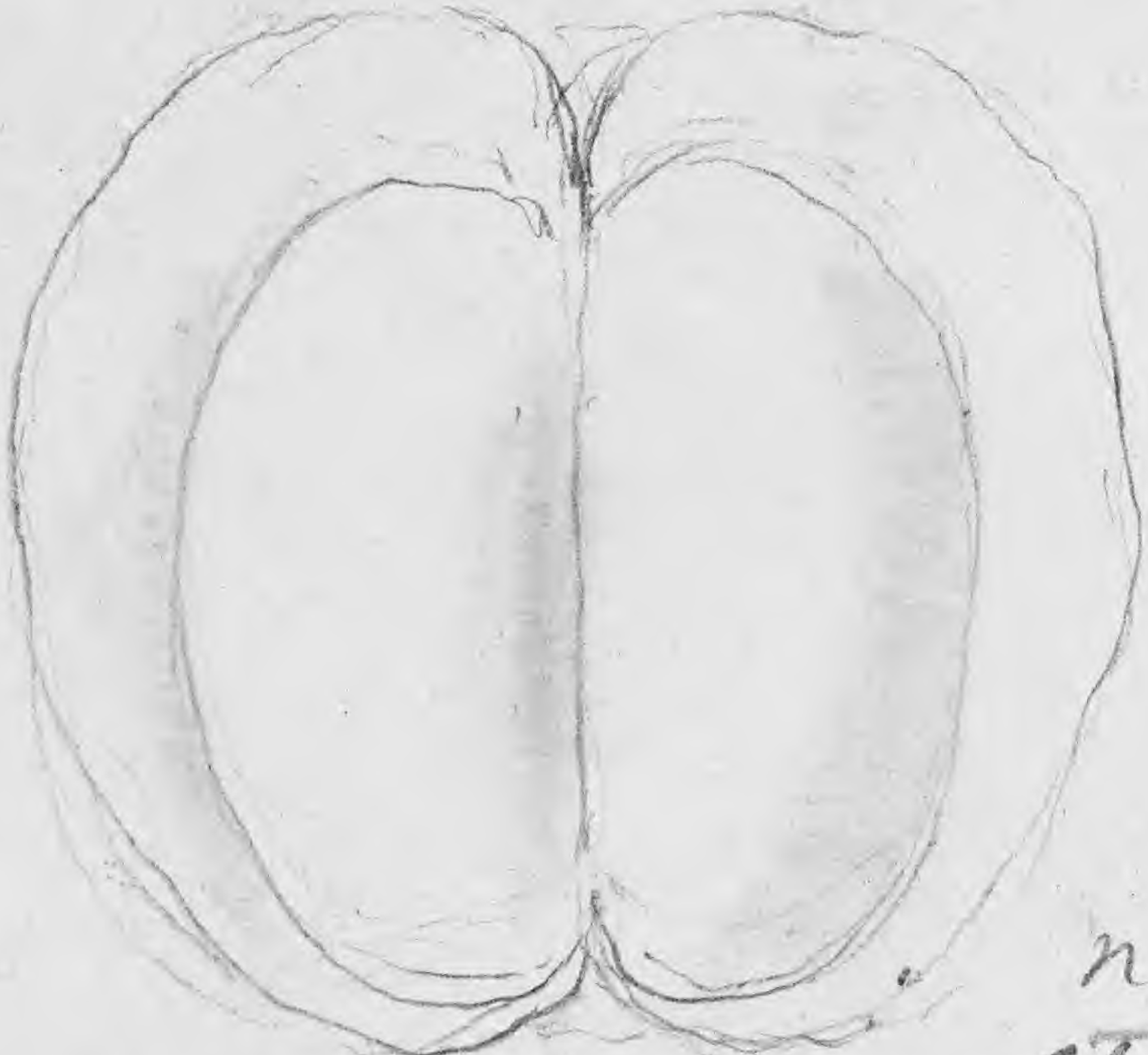
Aug 26
1865

X 30

sect of not quite ripe
fruit from Holstein
(Herb Bernhardi)

X150 surface
of nut, minutely
reticulate
& incompletely

X30

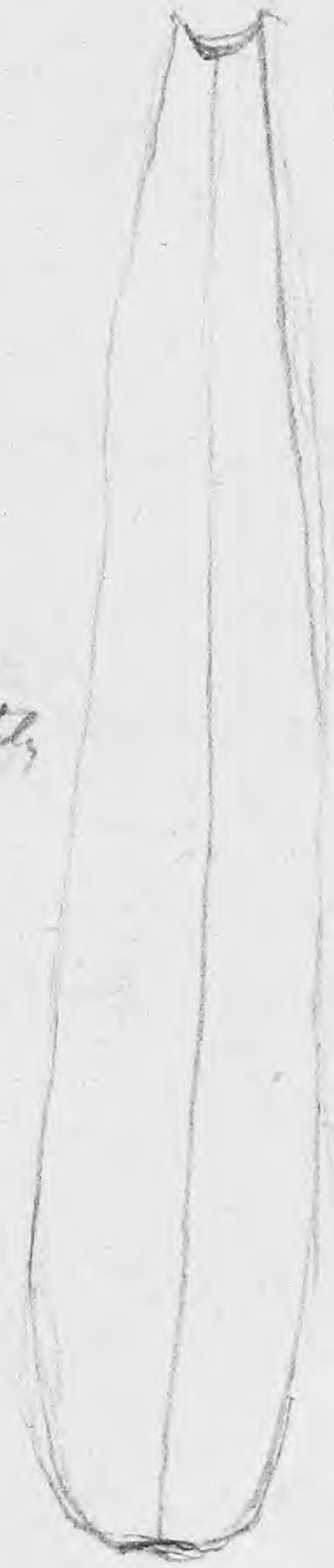


$\frac{50}{30}$
= 1,7 mm

no radiated
structure of wing

leaf

X10



992

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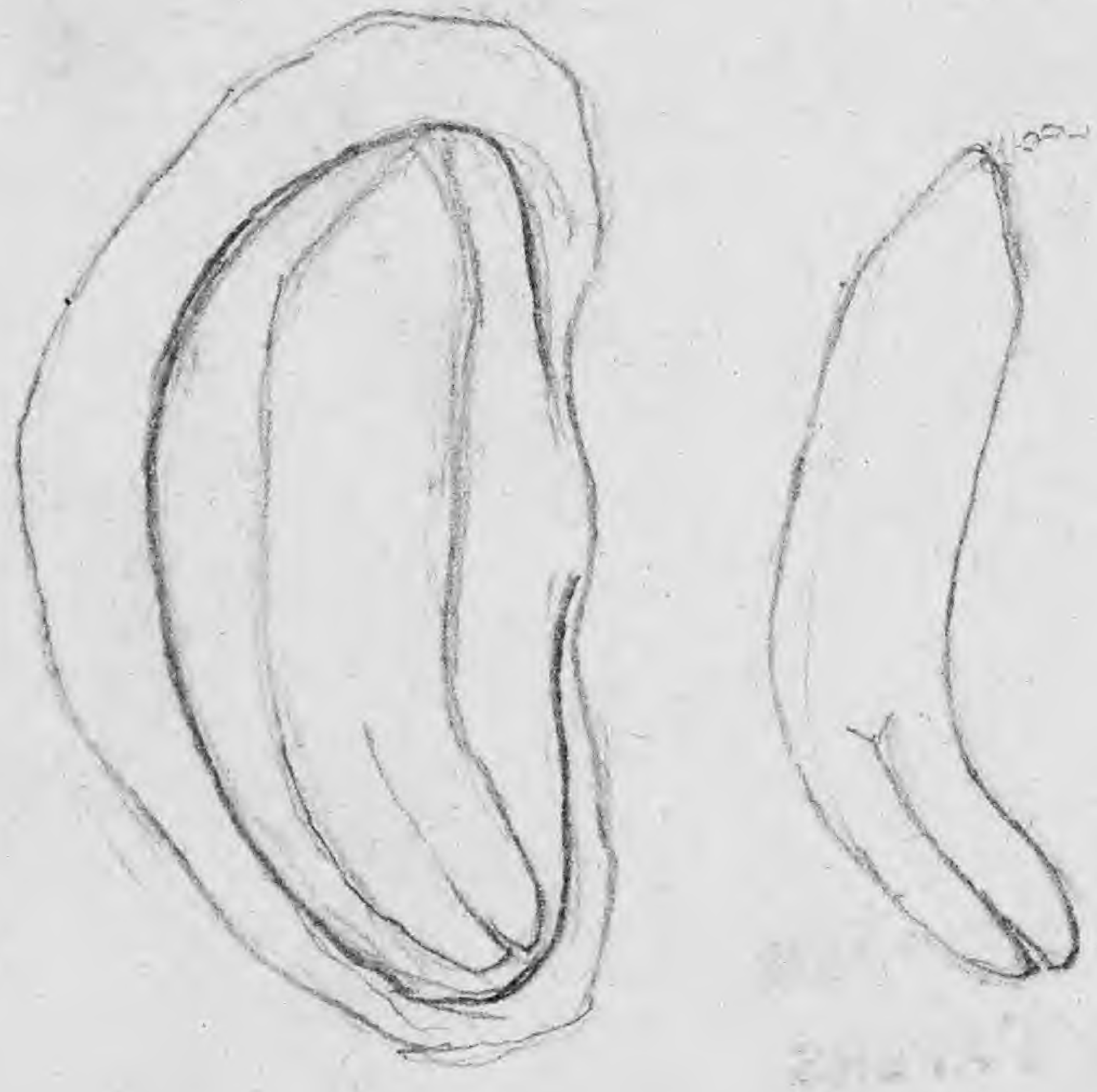
Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

Callitriche autumnalis Sept 19 1864
Alexandria bay, St Lawrence River
Clinton

×30



1.4 mm

993

ALEX. LEITCH,
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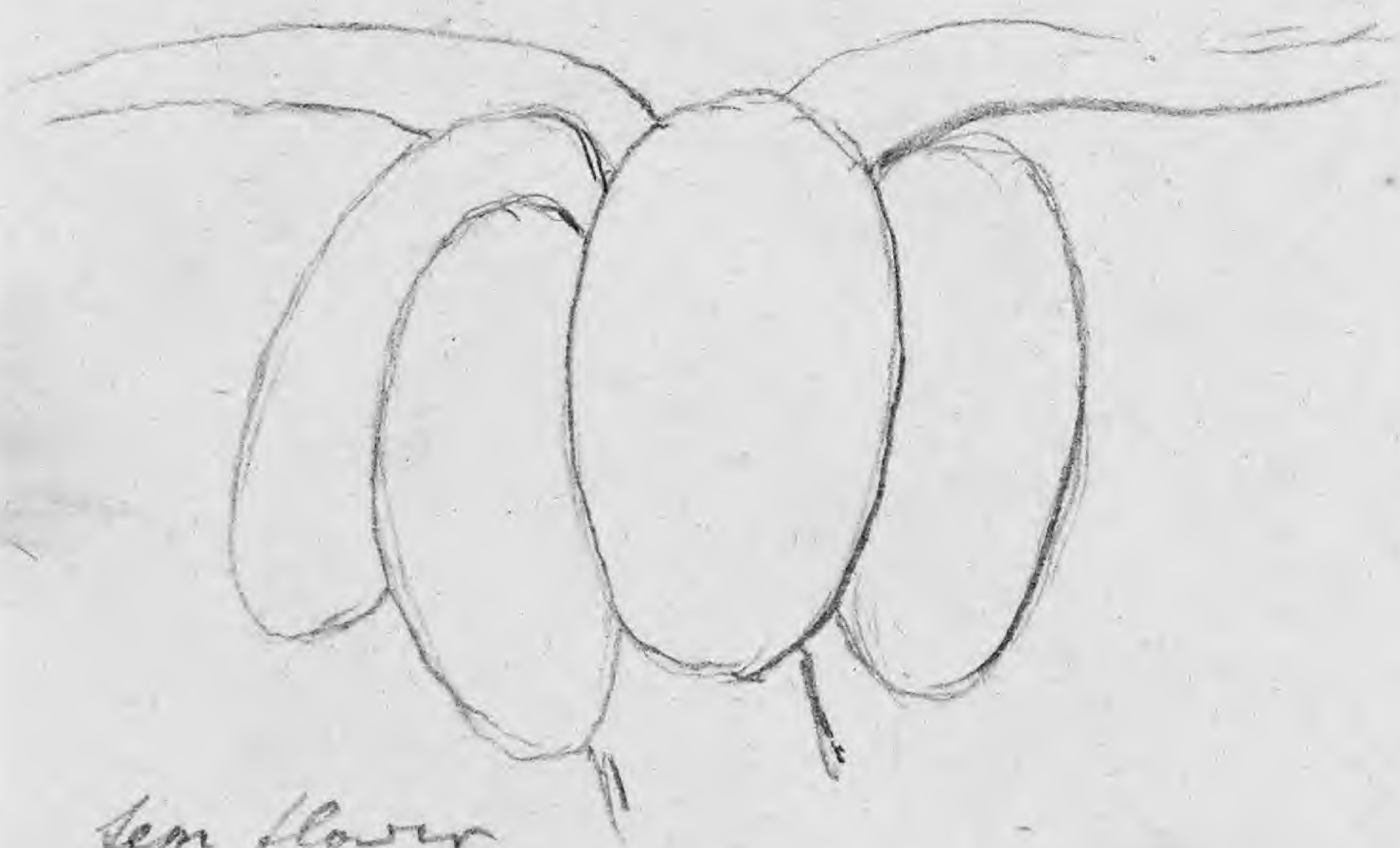
Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

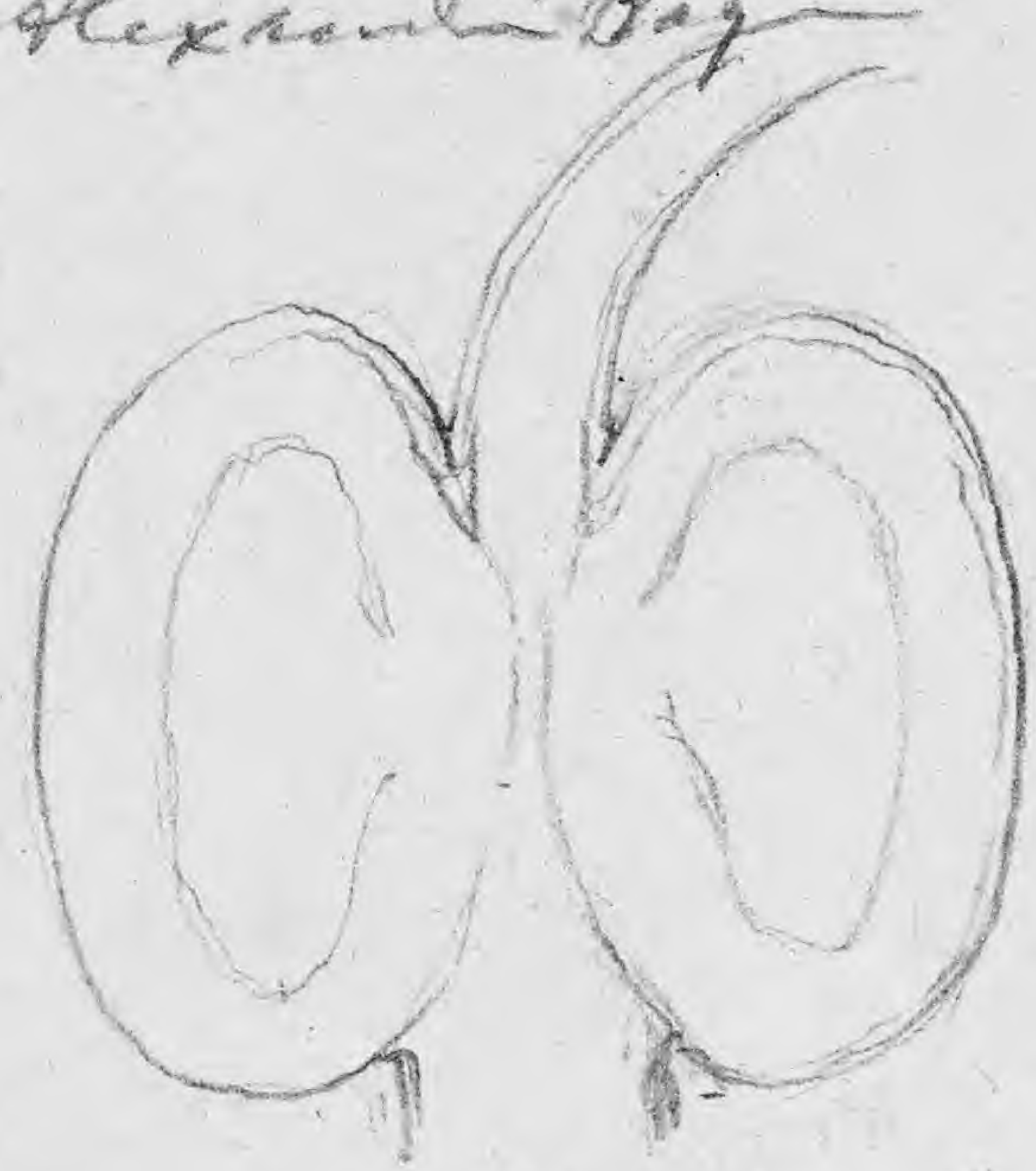
×60 Callitriche autumnalis Sept 19 1864

Alexandria Bay

994



fem flower
squeezed



single carpel
squeezed and made transparent
by caustic

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Callitriche Nuttallii. Torr

Copious memorandum by Prof Carpenter in Herb Torrey.

Extract:

Grows in old fields, damp soils, in little patches

Flowers from Feb to June.

The germ sessile at first, but afterwards pedicelled, the pedicles turning downward and the reniform fruit is buried beneath the surface, in the same manner as in Arachis hypogaea.

From this attachment, and from the numerous rootlets at the lower joints, it is very hard to detach from the ground

995

ALEX. LEITCH,
APOTHECARY & PHARMACEUTIST,
Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

 995A

Topaz in Utah. By Henry Engelmann.

During my explorations in Utah as Geologist of the Expedition under Capt. J. H. Simpson, Top. Eng'rs. U. S. A., in 1858 and 1859, I observed some remarkably beautiful crystals of Topaz among some detritus of trachytic porphyry. They were perfectly colorless, transparent, sharply developed, and of great lustre. They were all short columnar. The largest of them measured scarcely one third of an inch in the direction of the basal cleavage, which was highly perfect. I observed ten modifications: all crystals exhibited (according to Prof. Rose's designation)

$\infty c : b : a$,	$\infty c : b : 2a$,	$c : \infty b : : \infty a\ 1$,
$4c : b : \infty a$,	$2c : b : a$;	
most of them also	$2c : b : \infty a$,	$c : b : a$;
a few only	$2c : \infty b : a$,	and $4\,(?)\ c : b : a$.

As in none of the crystals were both ends developed, I could not ascertain whether they were hemihedral, as is most common with topaz. The hardness of the mineral is =8. It is infusible before the blowpipe; and when strongly heat ed is coated with small blisters, but does not show any change of color. It exhibits the reactions of fluorine, alumina, and silex. No tests were made for other elements, nor were the crystals examined in regard to pyro-electricity and polarization of light. They exhibit double refraction quite plainly.

The locality of the mineral is near lat. 39° 40′, long. 113° 30′ west of Greenwich, west of south of Salt Lake, in Thomas' range of mountains, on Capt. Simpson's return trail. Circumstances prevented me from obtaining more than a few crystals, which are now deposited in the collection of the Smithsonian Institute; a few others are also in the hands of members of the party. We were travelling at the time by forced night marches with nearly worn out animals, seeking to gain a spring of water in a distant range of mountains. This desert was then entirely unexplored. I have but little doubt that more interesting materials are to be found at the same point.

The mountains of the former Territory of Utah promise a rich yield to the mineralogist. We know already of gold and silver ores in the east, west and south part of that district; of copper and lead ores in the south, and I have discovered the latter also in the centre of it; of specular iron ores and native sulphur in the Rocky Mountains and near Little Salt Lake; of rock salt in the mountains south-east of Utah Lake; of native alum near Salt Lake; of various other salts in the deserts; and of silicates, composing the granites, porphyries, diorites, trachytes, and lavas, nearly over the whole area.

ELÆACRINUS KIRKWOODENSIS, n. sp.

Body very small, subglobose, a little longer than wide, flattened above and below. Basal pieces very gently concave, with their edges on a level with the plane of the under side. Radial pieces (fork pieces) reaching to the base and occupying more than four fifths the entire length of the body, narrow below and widest in the middle, sides gently arched. Interradial pieces subdeltoid, very prominent towards the apex, much longer than wide, obtusely angulated below, acutely angulated above, and notched on either side a short distance below the summit. Pseudo-ambulacral areas extending from base to summit, narrow, deeply impressed; sides nearly parallel; pore pieces amounting to about fifty in each field. A longitudinal fissure or slit extends from the central summit opening downwards, separating the pore pieces of one side from their fellows of the opposite for the distance of about one fifth the length of the field, thence their inner edges are united in the median line to the base. Pseudo-ambulacral spaces lanceolate, sloping gently from their edges to the sutures. Ovarial apertures eight, very minute, situated at the notches of the interradial plates. Anal opening large, circular or very slightly elliptical. The surface markings are not plainly exhibited in any of the specimens I have collected of this species. On several of them I observe, more or less distinctly, irregular coarse rugæ or pittings, which, however, may be due to weathering.

Dimensions.—Length, 0.20 of an inch; width, 0.18.

The *Elæacrinus Kirkwoodensis* is nearly allied to *E.* (*Pentremites*) *melo*, from which it is distinguished by its much smaller size and less deeply excavated base. It also occupies a higher geological position.

Occurs in the St. Louis Limestone (Carboniferous) on the Pacific railroad near Kirkwood, St. Louis county, Missouri.

Callitriche Nuttallii Torr Sept 10 1864

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Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

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Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

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